infections produced in mice by the intravenous injections of varying numbers of organisms. The technic of producing such infections and the time and method of treatment have been described previously by us.[3]

It is to be noted that in each experiment, the untreated control mice were dead by the sixth day, and at the end of the first week of treatment 73.5% of those mice treated with sulfapyridine were still alive while only 34% of the mice treated with sulfanilamide were surviving. At the end of the second week (4 days after the termination of therapy) 32.6% of the mice treated with sulfapyridine were alive while only 8% of those treated with sulfanilamide were living. The surviving mice are being held for an indefinite period, to determine their eventual fate.

It seems from these results, that the chemotherapeutic effect of sulfapyridine in staphylococcal infections in mice is definite enough to warrant careful clinical trials of the drug in severe staphylococcal infections. We are conducting such trials and to date we have noted dramatic clinical results in 2 patients suffering from severe staphylococcal sepsis.

10298

Sulfonamide Therapy of Experimental Peritonitis Due to *E. coli, B. proteus* and *B. pyocyaneous.*

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While sulfanilamide therapy of urinary tract infections due to *E. coli* is universally recognized as effective, application of this therapy to similar infections in other sites has received scant attention. For this reason, experiments were undertaken to test the efficacy of sulfanilamide* and of 2-(sulfanilamido)-pyridine† (sulfapyridine) in *E. coli* peritonitis of mice and thereby furnish an experimental basis for possible clinical application. At the same time experiments were also set up to test the value of these drugs in peritoneal infections of *B. proteus* and *B. pyocyaneous* in mice.

* Synthesized and donated to us by the Monsanto Chemical Company, St. Louis, Missouri.

†Synthesized and donated to us by the Maltbie Chemical Company, Newark, New Jersey.

Method: One of the 2 hemolytic strains of *E. coli* employed, and the strain of *B. proteus,* were both isolated from the pus of an acutely inflamed appendix; the second strain of *E. coli* came from a case of urinary tract infection; while the strain of *B. pyocyaneous* was recovered from a second appendiceal abscess.

Mice were inoculated intraäbdominally with 0.5 cc of the various 6-hour cultures suitably diluted and containing 5% mucin. The animals in the *E. coli* experiment were infected with different cul-

TABLE I.

Curative Action of Sulfanilamide and Its Pyridine Derivative in Peritonitis of Mice Caused by *E. coli, B. proteus,* and *B. pyocyaneous.*

Infecting Organism	No. mice	Culture dilution	Lethal doses	Treatment 20 mg q.d. orally	Treatment No. days treated	No. deaths daily 1	2	3	4	5	6	Alive after 7 days
E. coli	10	10^{-4}	1-10	—	—	7	1	—	—	—	—	2
	10	10^{-4}	1-10	SA	5	—	—	—	1	—	—	9
E. coli	10	10^{-4}	10	—	—	9	1	—	—	—	—	0
	10	10^{-4}	10	SA	2	—	1	—	—	—	—	9
E. coli	10	10^{-3}	1-10	—	—	7	1	—	—	—	—	2
	10	10^{-3}	1-10	P	2	—	2	—	—	—	—	8
E. coli	10	10^{-3}	100	—	—	10	—	—	—	—	—	0
	10	10^{-3}	100	SA	2	2	—	—	—	—	—	8
E. coli	10	10^{-2}	1000	—	—	10	—	—	—	—	—	0
	10	10^{-2}	1000	SA	1	9	1	—	—	—	—	0
B. proteus	10	10^{-2}	10	—	—	10	—	—	—	—	—	0
	10	10^{-2}	10	SA	2	—	1	—	—	—	1	8
B. proteus	10	10^{-2}	10	—	—	8	1	—	—	—	—	1
	10	10^{-2}	10	P	2	1	—	—	—	—	—	9
B. pyocyaneous	10	10^{-1}	1-10	—	—	6	1	—	1	—	—	2
	10	10^{-1}	1-10	SA	2	—	3	—	—	—	—	7
B. pyocyaneous	10	10^{-1}	1	—	—	5	—	—	—	—	—	5
	10	10^{-1}	1	P	—	4	—	—	—	—	—	6
B. pyocyaneous	10	10^{-1}	1	—	—	4	—	—	—	—	—	6
	10	10^{-1}	1	SA	1	—	2	—	—	—	—	8
	10	10^{-1}	1	P	1	—	1	—	—	—	—	9
B. pyocyaneous	10	10^{-0}	10	—	—	10	—	—	—	—	—	0
	10	10^{-0}	10	SA	1	10	—	—	—	—	—	0
	10	10^{-0}	10	P	1	9	—	—	—	—	—	1
B. pyocyaneous plus *E. coli*	10	10^{-3}	10	—	—	10	—	—	—	—	—	0
	10	10^{-3}	10	SA	1	10	—	—	—	—	—	0

SA—sulfanilamide.
P—2-(sulfanilamido)-pyridine.
q.d.—once daily.

ture dilutions, equivalent to 1 to 10, 100, and 1000 lethal doses. Those of the *B. proteus* experiment were given 10 lethal doses, while the mice infected with *B. pyocyaneous* were given less than 1 lethal dose in 2 series and 10 lethal doses in 2 others. In a final experiment, equal parts of 6-hour cultures of *E. coli* and of *B. pyocyaneous* were mixed, diluted to 10^{-8}, admixed with an equal volume of 10% mucin and administered as in the other experiments. This inoculum was equivalent to about 10 lethal doses. All titrations were performed previous to and also simultaneous with the experiments proper.

The treatments, consisting of 20 mg of drug suspended in 0.2 cc of 15% gum acacia, were given by mouth 2 hours after infection and then once daily.

Results: The results listed in Table I show that sulfanilamide was effective against 100 lethal doses, but not against 1000 lethal doses of *E. coli.* Similarly, this drug was effective against 10 lethal doses of *B. proteus* but was ineffective against less than 10 lethal doses of *B. pyocyaneous.* The pyridine derivative of sulfanilamide also proved effective against *E. coli,* and *B. proteus* peritonitis but ineffective against that of *B. pyocyaneous.* Sulfanilamide was ineffective against the mixed infection, although the size of the inoculum of each organism, considered separately, was well within the therapeutic range of this drug.

Summary. Sulfanilamide and 2-(sulfanilamido)-pyridine are both effective against peritonitis of mice caused by *E. coli* and *B. proteus,* but are ineffective against peritonitis of mice caused by *B. pyocyaneous.*

Sulfanilamide may cure mice infected intraäbdominally with 100 lethal doses of *E. coli,* or 10 of *B. proteus;* whereas it is ineffective against 1000 lethal doses of *E. coli;* less than 10 of *B. pyocyaneous;* or against 10 lethal doses of a mixture of *E. coli* and *B. pyocyaneous.*